

**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**  
(PCT Article 36 and Rule 70)

REC'D 22 JUL 2004

WIPO PCT

Applicant's or agent's file reference <b>JED1149</b>	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. <b>PCT/GB 03/01730</b>	International filing date (day/month/year) <b>22.04.2003</b>	Priority date (day/month/year) <b>26.04.2002</b>
International Patent Classification (IPC) or both national classification and IPC <b>B01D53/04</b>		
Applicant <b>DRUMMOND, Desmond, Charles et al.</b>		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I  Basis of the opinion
- II  Priority
- III  Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV  Lack of unity of invention
- V  Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI  Certain documents cited
- VII  Certain defects in the international application
- VIII  Certain observations on the international application

Date of submission of the demand <b>21.11.2003</b>	Date of completion of this report <b>21.07.2004</b>
Name and mailing address of the international preliminary examining authority:  <b>European Patent Office</b> D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  <b>de Biasio, A</b> Telephone No. +49 89 2399-8627
	

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB 03/01730

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-30 as originally filed

**Claims, Numbers**

1-11 filed with telefax on 13.04.2004

**Drawings, Sheets**

1/2-2/2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

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5.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).  
*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-11
	No: Claims	
Inventive step (IS)	Yes: Claims	1-11
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-11
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

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EXAMINATION REPORT - SEPARATE SHEET**

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**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1.1 WO-A-02/38465 (D1), by the applicants themselves and cited in the present application, should constitute the preamble of present claim 1. The method of D1 further comprises to press the two parts, i.e. pot lid and pot body, with the membrane trapped between the touching surfaces. Thus the two-part form of claim 1 does not seem to be correctly formulated (Rule 6.3(b) PCT). D1 does not disclose protuberances for directing energy during welding on either the pot lid or the pot body. Moreover, D1 having been published after the priority date of the present application is of no use in assessing compliance with Art. 33(2) PCT and Art. 33(3) PCT.

US-A-5.716.432 (D2) discloses a method of constructing a desiccant pot by trapping a spun-bonded membrane between two separate parts constituting either the pot lid or the pot body, these two separate parts being made of high density plastic. One of the separate parts has upon its touching surface an energy directing protrusion (cf col. 2, ll. 48-52). The energy directing protrusion extends from one touching surface to the other. Hence the use of energy directing protrusion in combination with ultrasonically welding a membrane to either a lid or a body is known in the field of constructing desiccant pots.

D2 does not disclose a low -density membrane made of spun-bond plastics. In D2 the membranes are welded either to the pot body or to the pot lid.

1.2 Also US-A-4.772.300 (D3) describes a method of constructing a desiccant pot having a membrane made of low -density membrane made of spun-bond plastics, namely Tyvek (col. 4, ll. 29-42) and a body made of high density plastic ( cf col. 3, ll. 46-48). No further lid is added to the desiccant pot. The membrane is ultrasonically welded to the pot.

1.3 US-A-5.465.856 (D4) relates to a method of constructing a container by joining two components under the action of pressure and heat. The heat of fusion can be provided by ultrasonic welding (cf col. 6, ll. 6-17). In figures 6-8 of D4 are shown two components preassembled before welding. One of the components is provided with energy directing protrusions (cf ref. signs 66, 80 and 86). In figures 15 and 16 the fusion process is illustrated (see also col. 6, ll. 32-47). D4 does not mention to place a membrane between the two parts before joining, nor does it teach to use its container as a desiccant stopper.

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- 1.4 To conclude none of the a.m. documents deprives the subject-matter of claim 1 of novelty (Art. 33(2) PCT), nor does it seem possible to derive the subject-matter of claim 1 from a combination of said documents in an obvious way (Art. 33(3) PCT).
  
2. The other documents cited in the search report seem to be less relevant:
  - 2.1 US-A-5.942.060 (D5) also relates to a method of constructing a desiccant pot. A porous membrane is ultrasonically welded to a tubular body. The body is made of high density polyethylene (cf col. 4, ll. 6-7), the membrane is also made of high density polyethylene (cf col. 4, ll. 14-17), no low-density material is used as in the present application. No lid is added.
  - 2.2 US-A-4.044.941 (D6) discloses a container made of a body, a lid and a seal membrane trapped between the body and the lid (see abstract). The contact surface of the container body is provided with an energy directing protrusion (cf fig. 3, ref. sign 10). Once the container is pre-assembled, the membrane is heated above the melting point of the container body and lid and pressure pushes the lid downwardly. The membrane is made of a metal foil, thus its not breathable and does nor melt during the joining step. Moreover, the only explicit use of this container is related to food products (cf col. 2, ll. 44-46).

CLAIMS

1. A method of constructing a desiccant pot by trapping a low density membrane (15) of spun bonded plastics between opposed touching surfaces (20,22) of two separate parts (12,13) constituting the pot lid (13) and the pot body (12), these two separate parts (12,13) being made of high density plastic, and then fusing the membrane (15) and the separate parts (12,13) together by ultrasonic welding, characterized by providing one of the separate parts (12,13) with a fine protuberance (21) in the form of one or more ridges or points extending from its touching surface (20) towards the touching surface (22) of the other separate part (12,13) to space the touching surfaces (20,22) slightly apart, and pressing the two parts (12,13) together with the membrane (15) trapped between the touching surfaces (20,22) so that the membrane (15) is compressed at the point of contact with the protuberance (21) thereby increasing its density at that point such that, at the time of ultrasonic welding, the protuberance (21) acts as an energy directing protrusion, and the ultrasonic vibrations pass from the protuberance (21) on the one part (12,13) through the membrane (15) at the point where it is compressed to increase its density to the other part (12,13).  
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2. A method according to claim 1, in which, the energy directing protrusion (21) forms a continuous ridge around the periphery said one part (12,13).
- 25 3. A method according to claim 1, in which, the energy directing protrusion (21) comprises a series of discrete protrusions arranged around the periphery of said one part (12,13).
- 30 4. A method according to any one of the preceding claims, in which the energy directing protrusion (21) projects from the touching surface (20) a distance of between 0.5 and 0.7mm.

5. A method according to any one of the preceding claims, in which the point or edge of the energy directing protrusion (21) is as sharp as possible to minimise the cross-sectional area of the tip of the protrusion (21).

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6. A method according to claim 5, in which the body (12) is a tubular component and the energy directing protrusion (21) is a sharp knife like edge at the end of the tubular body component.

10 7. A method according to claim 6, in which the energy directing protrusion (21) is formed by moulding a chamfer (24) to the outside edge of the tube wall.

15 8. A method according to claim 7, in which the angle of the chamfer (24) is of the order of 60°.

9. A method according to any one of the preceding claims, in which the energy directing protrusion (21) is arranged such that it bears against a peripheral area of the membrane (15).

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10. A method according to any one of the preceding claims, in which the separate parts (12,13) of the pot body (12) and pot lid (13) are of a high density polyethylene.

25 11. A method according to any of the preceding claims, in which the pot body (12) has first and second ends and each end is provided with a pot lid (13) and a membrane (15) trapped between the pot lid (13) and the adjacent end of the body (12).